



Amendments to the Drawings

The attached Replacement Sheets of drawings include changes to FIGS. 2-5, 6(A)-6(B), 7-8 and 12. These sheets, which include FIGS. 2-5, 6(A)-6(B), 7-8 and 12 replace the original sheets including FIGS. 2-5, 6(A)-6(B), 7-8 and 12. In all the figures the label "PRIOR ART" has been added.

Attachments: Replacement Sheets (FIGS. 2-5, 6(A)-6(B), 7-8 and 12)

Annotated Drawing Sheets (FIGS. 2-5, 6(A)-6(B), 7-8 and 12)



REMARKS

Claims 15, 16, 26, 27, 37, 38 and 40 have been amended.

The Examiner has objected to the drawings as failing to designate FIGS. 2-5, 6(A)-6(B), 7-8 and 12 as "Prior Art." Applicant has included herewith amended drawings labeling these figures as "Prior Art." The Examiner is respectfully requested to approve and enter the amended drawings.

The Examiner has objected to the disclosure due to certain informalities noted by the Examiner on page 24 and 28. Applicant has amended the disclosure as above set forth and believes that the amendments have removed this objection.

The Examiner has also objected to the Title of the Invention as not descriptive of the invention. Applicant has amended the Title as suggested by the Examiner to obviate this objection.

The Examiner has additionally objected to claim 38 in that it depends on itself. Applicant has amended claim 38 so that it depends on claim 37, thereby overcoming this objection.

The Examiner has rejected applicant's claims 15, 19, 26, 30, and 37-39 under 35 U.S.C. § 103(a) as unpatentable based on the Kikuchi (US Patent No. 5,212,598) patent in view of applicant's description of the prior art at page 2-18 of applicant's specification and FIG. 7 of applicant's drawings. With respect to applicant's claims, as amended, this rejection is respectfully traversed.

Applicant's independent claims 15, 26 and 37 have been amended to better define applicant's invention. More particularly, amended claim 15 recites a lens control apparatus

comprising: a movable part which is movable along an optical axis for performing focus adjustment; an actuator which drives said movable part; a position-of-movable-part detecting unit which detects a position of said movable part; a focus control unit which determines a state of focus and supplies a driving signal which causes said movable part to move toward an in-focus position, according to the determined state of focus; and a position control unit which performs position control of said movable part via said actuator by updating the driving signal by a plurality of times during a vertical synchronizing period. Claims 26 and 37 have similar features and have been similarly amended.

The Examiner has acknowledged that the system of the Kikuchi patent fails to use a position control unit in which there is an updating of the driving signal by a plurality of times during a predetermined period of time. The Examiner, however, argues that “[a]pplicant’s conceded Prior Art, Figures 7-8, Specification, pages 14-16, discloses that the standard moving speed of the focusing lens is calculated by a plurality of times during one vertical synchronizing period (updating the driving signal plurality of times during a predetermined period)” and that it “would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Kikuchi by the teaching of Applicant’s conceded Prior Art in order to prevent the occurrence of defocusing (Specification, page 14, lines 1-6).”

Applicant disagrees. In particular, the description in applicant’s specification referred to by the Examiner is with reference to a system which is believed different from the system of the Kikuchi patent. Moreover, the teachings together would not result in “position control unit which performs position control of said movable part via said actuator by updating the driving signal by a plurality of times during a vertical synchronizing period.” Therefore, it is not believed that viewing the Kikuchi patent, in light of aforementioned description in applicant’s

disclosure, would result in applicant's invention, as now claimed in applicant's amended claims 15, 26 and 37, and their respective dependent claims. Such claims thus patentably distinguish over the cited art.

In view of the above, it is submitted that applicant's claims 15, 26 and 37, and their respective dependent claims, patentably distinguish over the cited art of record. Accordingly, reconsideration of such claims and passage of same with the allowed claims to issue is respectfully requested.

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Respectfully submitted,

COWAN, LIEBOWITZ & LATMAN, P. C.
1133 Avenue of the Americas
New York, New York 10036
T (212) 790-9200

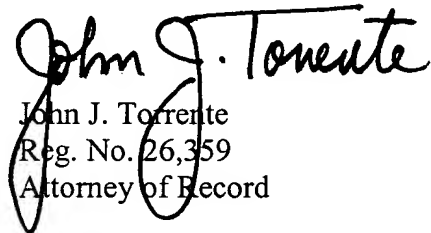

John J. Torrente
Reg. No. 26,359
Attorney of Record

FIG. 2 (Prior Art)

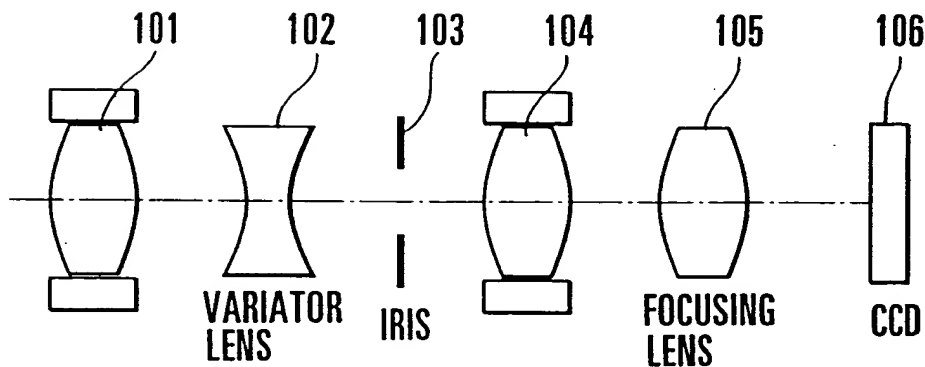


FIG. 3 (Prior Art)

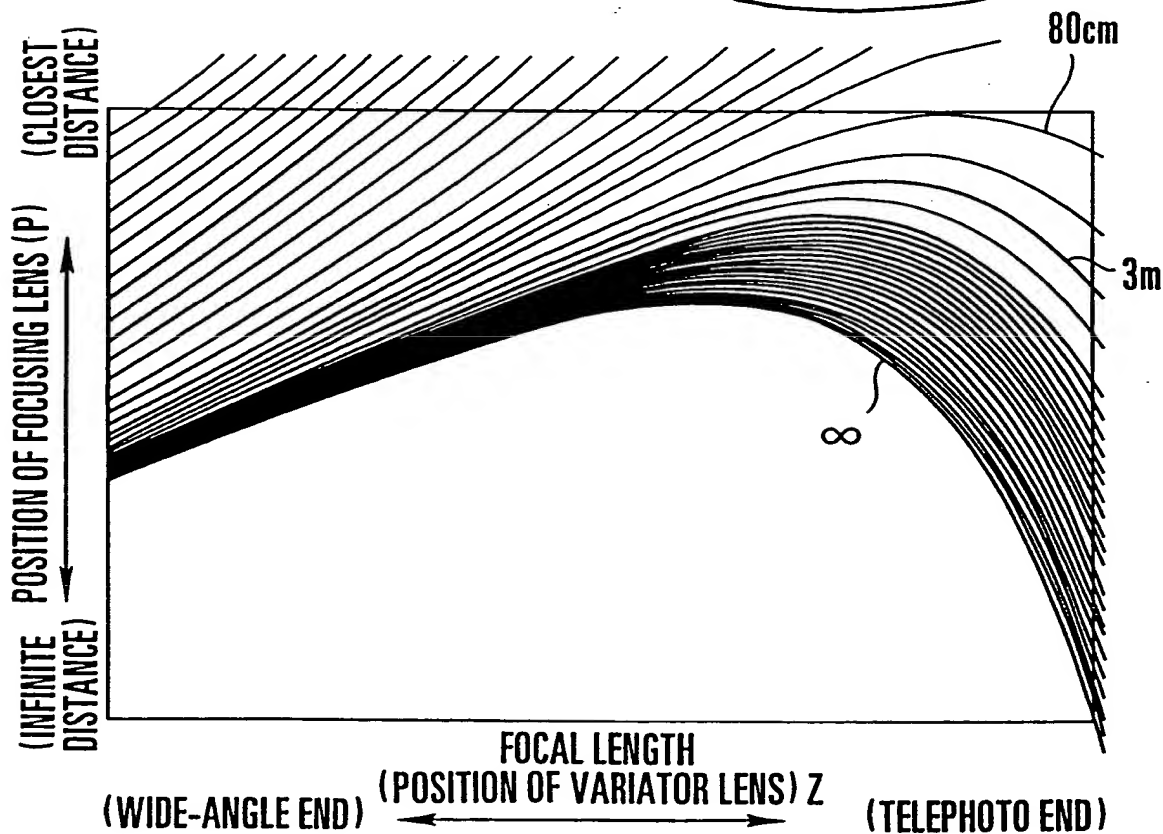


FIG. 4
(Prior Art)

label added

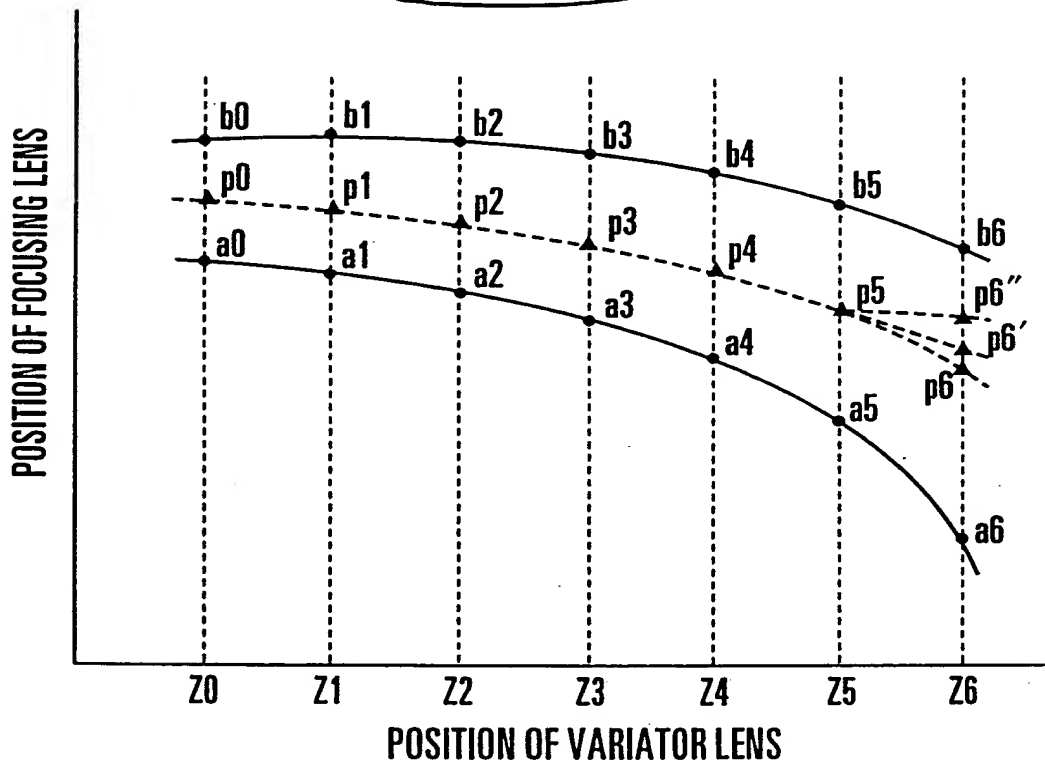
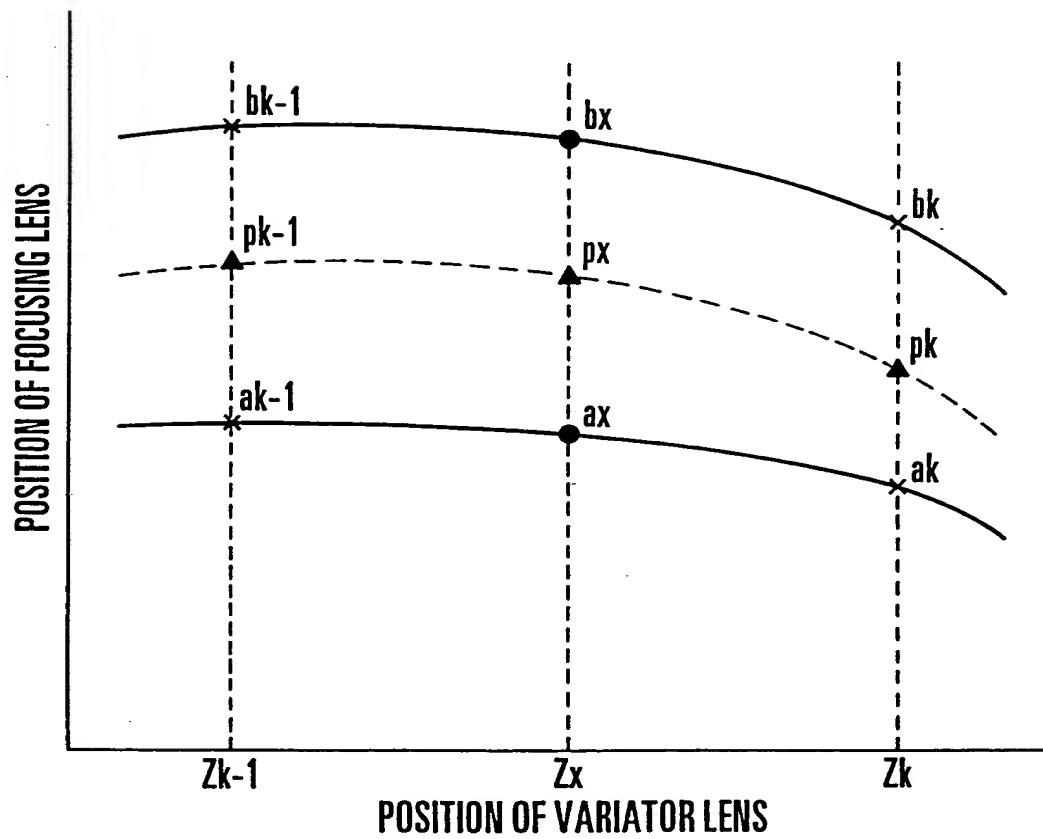


FIG. 5
 (Prior Art) *Label added*



$$ax = ak - \frac{(Z_k - Z_x)(ak - ak-1)}{(Z_k - Z_{k-1})}$$

$$bx = bk - \frac{(Z_k - Z_x)(bk - bk-1)}{(Z_k - Z_{k-1})}$$

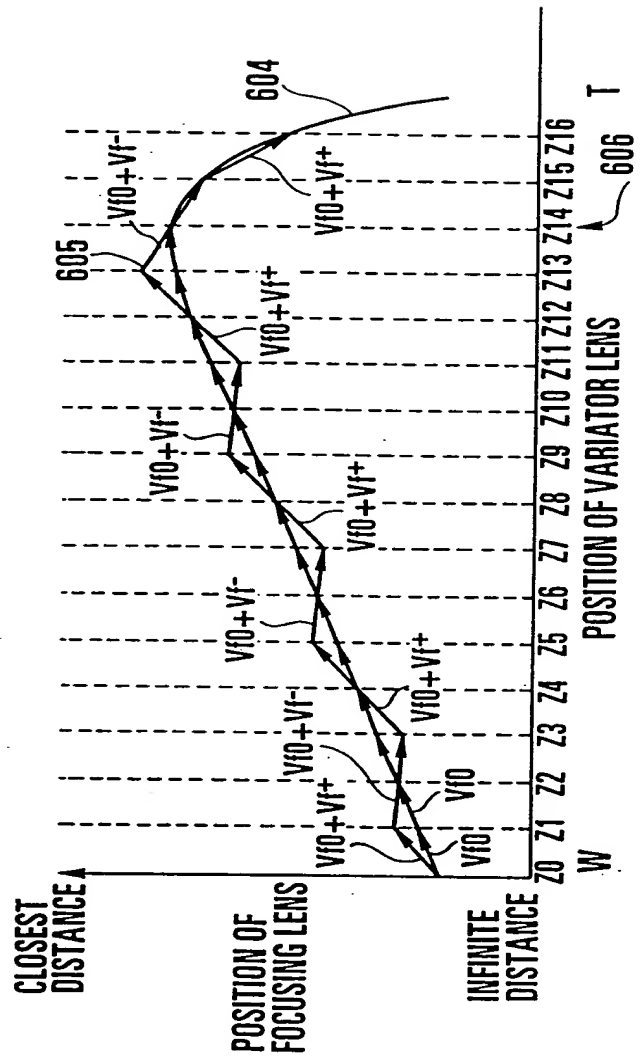
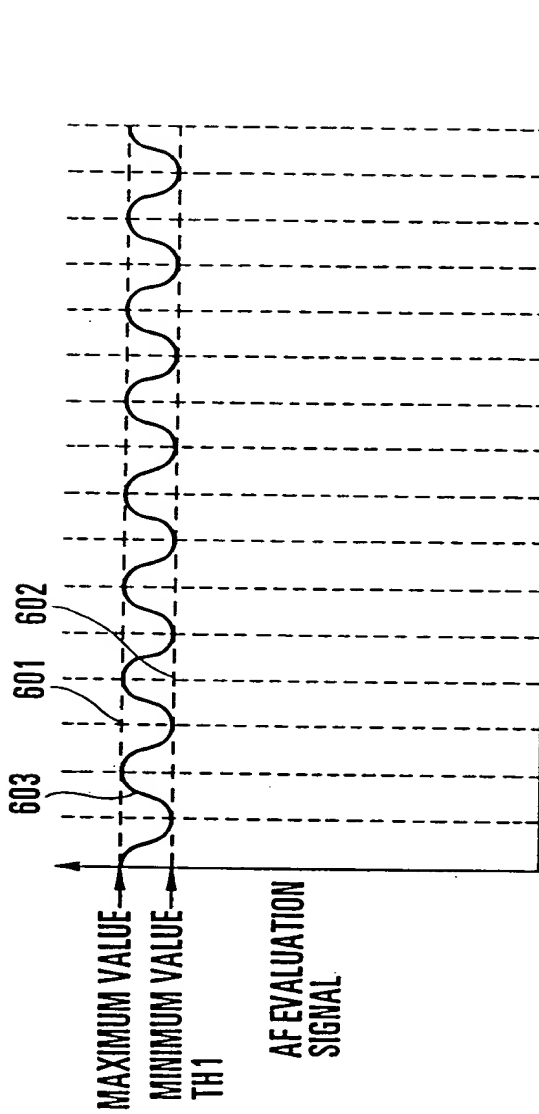


FIG. 7 (Prior Art)

label added

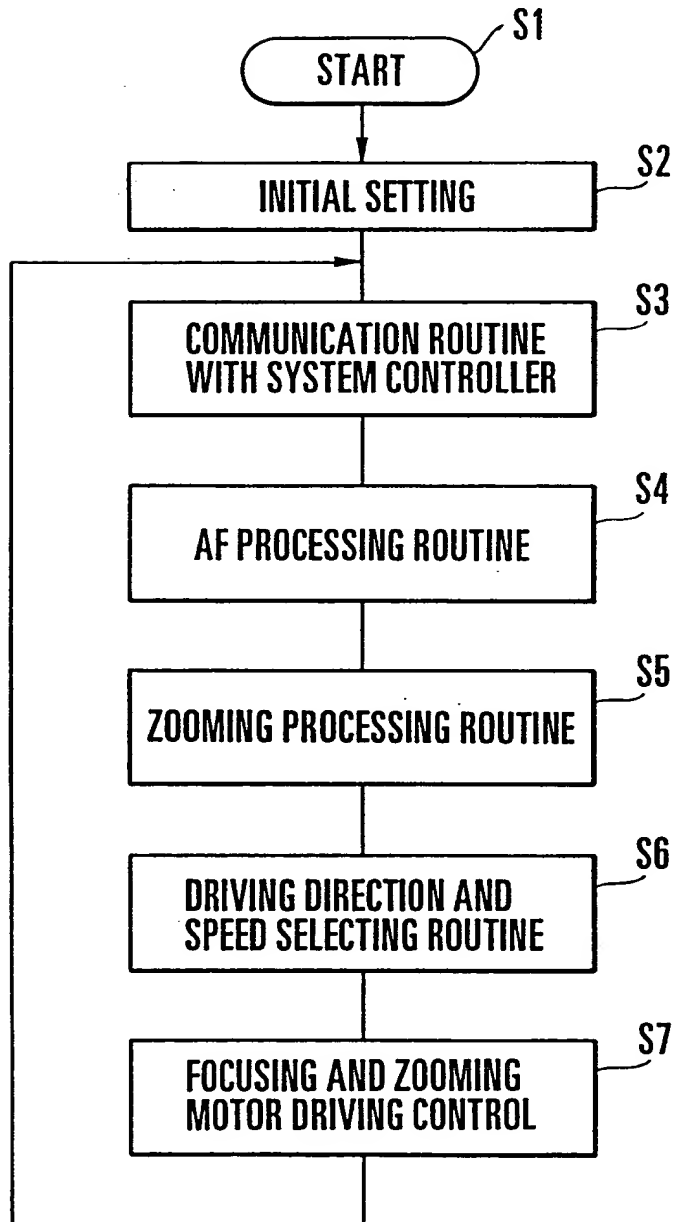


FIG. 8 (Prior Art) *label added*

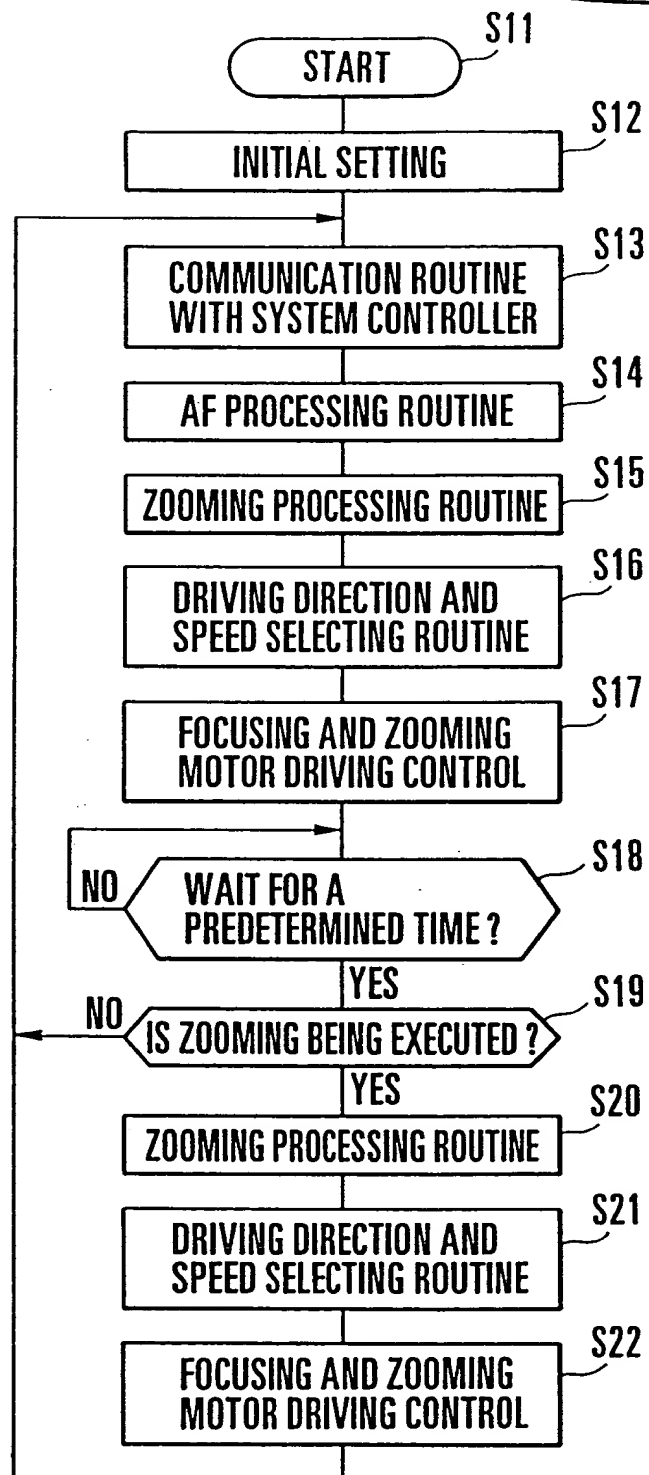


FIG. 12

(Prior Art) *label added*

$A(n,v)$

FOCUS POSITION $\xrightarrow{\infty}$ CLOSEST DISTANCE

ZOOM POSITION \downarrow

| | | | | | | | | |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| $v \backslash n$ | 0 | 1 | 2 | 3 | ... | k | ... | m |
| 0 | $A(0,0)$ | $A(1,0)$ | $A(2,0)$ | $A(3,0)$ | ... | $A(k,0)$ | ... | $A(m,0)$ |
| 1 | $A(0,1)$ | $A(1,1)$ | $A(2,1)$ | $A(3,1)$ | ... | $A(k,1)$ | ... | $A(m,1)$ |
| 2 | $A(0,2)$ | $A(1,2)$ | $A(2,2)$ | $A(3,2)$ | ... | $A(k,2)$ | ... | $A(m,2)$ |
| 3 | $A(0,3)$ | $A(1,3)$ | $A(2,3)$ | $A(3,3)$ | ... | $A(k,3)$ | ... | $A(m,3)$ |
| \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots |
| k | $A(0,k)$ | $A(1,k)$ | $A(2,k)$ | $A(3,k)$ | ... | $A(k,k)$ | ... | $A(m,k)$ |
| \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots | \vdots |
| s | $A(0,s)$ | $A(1,s)$ | $A(2,s)$ | $A(3,s)$ | ... | $A(k,s)$ | ... | $A(m,s)$ |